

REMARKS

Claims 3, 4, 11 and 12 are all the claims pending in the application.

Double Patenting rejection

Claims 3, 4, 11 and 12 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of Sakaida, U.S. Patent No. 6,704,591 (hereinafter '591 reference) in view of Wilkins (US 6,226,353). Claims 3, 4, 11 and 12 are also rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over Claims 1 and 5 of Sakaida (US Patent No. 7,171,031) (hereinafter '031 reference) in view of Wilkins.

In view of the terminal disclaimers filed with this Response with respect to the two issued U.S. patents, Applicants respectfully request the Examiner to withdraw the double patenting rejection of claims 3, 4, 11 and 12.

Claim rejections under 35 U.S.C. § 103(a)

Claims 3, 4, 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable Wilkins (US 6,226,353; hereinafter "Wilkins") in view of Toth et al. (US patent 5,361,291). Applicants traverse the rejections for at least the following reasons.

Claim 3

The Examiner asserts that Wilkins discloses a method of restoring phase information on a radiation transmitted through an object on the basis of detection data obtained by detecting intensity of the radiation transmitted through the object (FIG. 1 and 2). Also, the Examiner

contends that Wilkins discloses obtaining plurality sets of detection data respective representing plural kinds of radiation image information on plural detection planes (FIG. 2) at different distances from the object (column 4, lines 5-8 and column 6, lines 5-10) by using wavelength with energy from 16 keV to 30 keV to detect intensity of the radiation on said plural detection planes (column 6, line 40).

However, the Examiner admits that Wilkins does not disclose obtaining a differential coefficient between said plural sets of detection data, calculating a Laplacian of phase on the basis of said differential coefficient and any one of said plural sets of detection data, and performing inverse Laplacian computation on the Laplacian of phase to obtain the phase information. The Examiner turns to the Toth reference to cure the deficiency noted above with regard to Wilkins. Applicants respectfully disagree with the rejection for at least the following reasons.

Claim 3 recites, *inter alia*, obtaining a differential coefficient between said plural sets of detection data and calculating a Laplacian of phase on the basis of said differential coefficient and any one of said plural sets of detection data and performing inverse Laplacian computation on the Laplacian of phase to obtain the phase information.

Toth is directed towards a deconvolution filter for computed tomography (CT) system. Toth discloses an X-ray source 10 which produces a fan beam of x-rays 24 originating from positions 13 or 13' as focal point 11 is wobbled. The fan beam 24 is attenuated by the imaged object 12 and received by plurality of detector elements 26. The detector signals 27 from the

detector elements 26 are received by filter 38 producing an intensity signal 36. The response of the detector elements 26 may be measured and modeled as an ideal detector element 26” followed by a filter 38 having the transfer function $F(s)$ representing the real world deviation of the detector elements (column 6, lines 45-57). **However, Toth does not disclose obtaining a differential coefficient between said plural sets of detection data and calculating a Laplacian of phase on the basis of said differential coefficient and any one of said plural sets of detection data.**

Specifically, Toth discloses that each element (i.e. detector elements 26) is described by a transfer function $F(s)$ and the response of the detector elements 26 are measured and modeled as an ideal detector element 26.” Also, the transfer function $F(s)$ of the filter 38 represents the real world deviation of the detector elements 26 from the ideal detector element 26”. **Therefore, Toth disclosed that filters 38 represent the deviation of a detector from an ideal detector and does not disclose obtaining a differential coefficient between said plural sets of detection data.**

Furthermore, Toth discloses that the transfer functions $F(s)$ is the Laplace transform of the function relating the output of the detector element 26 to the input of the detected element 26’ (column 7, lines 5-7). However, a Laplace transform of a **function relating an output of a detector to the input of the ideal detector** does not disclose calculating a Laplacian of phase **on the basis of said differential coefficient and any one of said plural sets of detection data.**

Moreover, FIG. 5 illustrates component signals 54 and 58 produced by the current and previous x-ray exposure of detector element 26'. The intensity signal 36 includes many component signal 58 associated with the number of previous cycles of the wobble signal 35 (column 6, lines 34-40). There is no disclosure of **obtaining a differential coefficient between the plural sets of detection data and calculating a Laplacian of phase on the basis of said differential coefficient and any one of the plural sets of detection data.** Wilkins also does not disclose the unique features noted above.

In view of the above, Applicants respectfully submit that Wilkins and Toth, alone or in combination, do not disclose all the limitations of claim 3, and therefore claim 3 is allowable over the cited references.

Claim 11

Claim 11 recites subject matter analogous to claim 3 and therefore is allowable for at least the same or similar reasons claim 3 is shown to be allowable.

Claims 4 and 12

Claims 4 and 12 depend from one of the independent claims that have been shown to be allowable, and therefore are also allowable at least by virtue of their dependency on claim 3.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

RESPONSE UNDER 37 C.F.R. § 1.116
Application No.: 10/671,786

Attorney Docket No.: Q77624

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

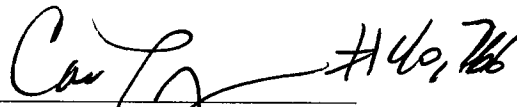
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Date: April 15, 2008